REMARKS

Claims 2, 4-5, 7-22, 24-30 are pending in the application, of which Claims 7, 12, 19, 24, 25, 26, 27, and 30 are independent claims. Claims 19-22 and 26 stand withdrawn from consideration, with Claims 24-25, and 30 having been rejoined in the application. Claims 2 and 10 have been rejected under 35 U.S.C. § 112; Claims 2, 7, 10-13, 17-18, 24-25, and 27-30 have been rejected under 35 U.S.C. § 102; and Claims 4-5, 8-9, and 14-16 have been rejected under 35 U.S.C. § 103.

In response, the rejections are traversed. Reconsideration is respectfully requested.

Claim Rejections Under Section 112

Claims 2 and 10 stand rejected under 35 U.S.C. § 112, first paragraph. The Office agrees that the Applicants' disclosure provides support for a claim limitation of "about 17%" but asserts that the disclosure does not provide support for "at least 17%".

As described on page 9, lines 26-27 of the originally filed Specification, a particular embodiment includes a diaphragm having a diameter of 0.626 in. and a nozzle opening having a diameter of 0.250 in. The surface area of the nozzle (1.234 in^2) is therefore 40% of the surface area of the diaphragm (3.084 in^2). Because 40% is more than 17%, the limitation of "at least 17%" is supported by the Applicants' Specification.

Reconsideration and withdrawal of the rejections under section 112 are respectfully requested.

Claim Rejections Under Section 102

Claims 2, 7, 10-13, 17-18, 24-25, and 27-30 have been rejected under 35 U.S.C. § 102(b) as being deemed anticipated by U.S. Patent No. 3,285,261 to Chaney. The rejections are traversed.

As discussed in prior responses, the Applicants' Specification discloses a pneumatic near-balanced differential pressure valve. As described with reference to FIG. 4, the operation of the valve is determined by the position of a diaphragm. When closed, the diaphragm is seated

against a nozzle or end of a gas passageway, which is pressured in the steady-state condition. The opposite side of diaphragm interfaces with a control chamber, such as a timing gas chamber.

The diaphragm is responsive to the pressure in the control chamber. The pressure in the control chamber cycles between being pressurized and having a reduced pressure. In the normal states, the control chamber is pressurized until triggered to begin depressurizing. When the control chamber is pressurized, the diaphragm closes to pneumatically seal the nozzle.

The control chamber begins losing pressure in response to an inhalation breath. As the pressure in the control chamber is reduced, the pressure in the nozzle overcomes the pressure exerted by the control chamber and the valve opens to pneumatically release from the nozzle to allow gas to flow from the nozzle and exit the valve. Because the gas should be delivered at the beginning of the breath so as to reach the lungs, the valve is very sensitive to the pressure in the control chamber. The Applicants describe a pneumatic valve that relies on near-balanced pressure and does not require bias springs or other mechanical assistance to release the diaphragm from the nozzle.

As recited in Claim 7, for example, the Applicants' invention is:

> A pneumatic differential pressure valve to supply a quantity of a medium in response to an inhalation breath, comprising:
>
> a nozzle in communication with a pressurized supply of a medium and having a head for delivering the pressurized supply of the medium to a delivery outlet;
>
> a control chamber capable of being pressurized and then depressurized in response to an inhalation breath; and
>
> a diaphragm disposed between the nozzle head and the delivery outlet and controlled by pressure in the control chamber, wherein ***the diaphragm pneumatically seals the nozzle head when the control chamber is pressurized and pneumatically releases from the nozzle head in response to a reduction in pressure in the control chamber***, and wherein the surface area of the nozzle head in contact with the diaphragm is computed so that the diaphragm pneumatically releases from the nozzle head in response to the inhalation breath without mechanical assistance.

(emphasis added).

In comparison, Chaney discusses a regulator having a pressure-responsive valve (19) disposed between a flared chamber (26) and an "E"-shaped back-up plate (20). An operating chamber (20') is defined by the space between the legs of the back-up plate (20). Gas flows

from the flared chamber (26) into the operating chamber (20') through an orifice (30) extending through the valve (19). Even when the valve (19) is seated against the flared chamber (26) gas flows through the orifice (30).

Applicants' Claims 7, however, recites : ***"the diaphragm pneumatically seals the nozzle head when the control chamber is pressurized*** …." Independent Claims 12, 24, and 25 recite similar limitations and Claims 27 and 30 have been amended to recite similar limitations. The Office Action considers Chaney's operating chamber (20') to be the same as the Applicants' control chamber, Chaney's flared chamber (26) to be the same as the Applicants' nozzle, and Chaney's valve (19) to be the same as the Applicants' diaphragm.

In contrast to the claimed invention, the Chaney valve (19) cannot pneumatically seal the flared chamber (26) due to the orifice (30). Because the Chaney device does not pneumatically seal a nozzle, Chaney does not teach or suggest the Applicants' claimed invention.

The allowability of the dependent claims follows from allowability of the independent claims from which they depend. Furthermore, the dependent claims recite additional patentable limitations. Because each independent claim recites patentable subject matter, all claims are in condition for allowance.

Reconsideration of the rejections under section 102 is respectfully requested.

Claim Rejections Under Section 103

Claims 4-5, 8-9, and 14-16 have been rejected under 35 U.S.C. § 103(a). While these dependent claims would be allowable upon allowance of the independent claims from which they depend, the Applicants traverse the rejections.

The Applicants describe and claim a gas delivery valve that includes a filter element in the gas delivery path. In other words, gas passes through the filter element before exiting the valve. In particular, the filter element is disposed in a nozzle that interfaces with a diaphragm in a differential pressure valve. The use of a filter in an oversized nozzle was found to be advantageous in the Applicants' device, as described in the Specification.

Claims 4, 8, and 14 were rejected under 35 U.S.C. § 103(a) based on Chaney in view of U.S. Patent No. 4,363,424 to Holben et al. First, Chaney does not teach or suggest the claimed invention, as discussed above. Second, Holben discusses a sintered bronze filter (162) that is at the interface between the regulator and the storage tank poppet. The filter (162) is thus positioned at beginning of the gas flow before the gas enters the regulator (*see* Holben, col. 8, ll. 17-21) like Chaney, not at the interface of a delivery nozzle and diaphragm as required by the Applicants' claims. The combination of Chaney and Holben therefore does not render the claimed limitations obvious.

Claims 5, 9, 15, and 16 were rejected under 35 U.S.C. § 103(a) based on Chaney in view of Holben, and further in view of U.S. Patent No. 5,348,001 to Danon. As discussed above, the combination of Chaney and Holben do not suggest a filter at the interface of the delivery nozzle and diaphragm. The Office relies on Danon to show the porosity of a filter. Danon does not cure the defects in the Chaney-Holben combination.

Reconsideration and withdrawal of the rejections under section 103 are respectfully requested.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this application, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,

R.D. Johnson & Associates, P.C.

By /Rodney D. Johnson/
Rodney D. Johnson
Registration No. 36,558
Telephone: (781) 444-6844
Facsimile: (617) 412-3081

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